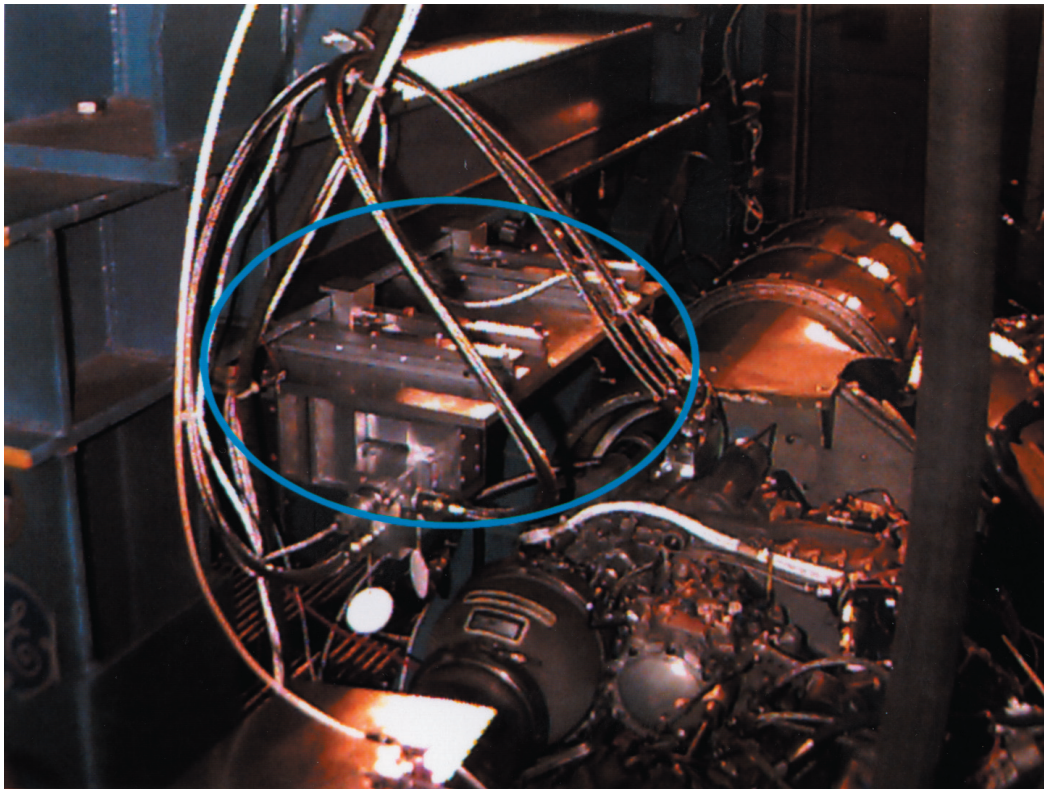


LASERNET Optical Oil Debris Sensor



DESCRIPTION:

NRL has developed a real-time, in-line optical sensor called LASERNET for detecting and classifying suspended particles in lubricating oil flow systems. The LASERNET monitor examines all of the oil flow, not just a sample, and detects and classifies particles according to specific mechanical faults. The system incorporates laser diode illumination of the oil, high-speed optical imaging, real-time image processing, and neural net classification of the particles. A LASERNET monitor has been tested at a Naval Air Warfare Center Aircraft Division helicopter power train facility.

ADVANTAGES/FEATURES:

- Visualizes all particles with high-speed imaging (1000 frames/s)
- Detects metallic and nonmetallic particles
- Able to monitor changes in particle size, shape, or abundance
- Correlates particles with specific mechanical wear or faults
- Real-time analysis gives rapid results and reduces analytical costs
- Licensable under US patent # 6,049,381

APPLICATIONS:

(In helicopters, fixed-wing aircraft, and other oil-lubricated rotating machinery)

- Continuous health monitoring of engines and gearboxes
- Notification of need for routine engine maintenance
- Alarm warning of potential catastrophic failure

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